

REMARKS/ARGUMENTS

In this amendment, claims 1-4 and 20-21 have been amended; claim 22 has been added; and no claims have been canceled. Thus, claims 1-22 are pending. Support for all amended and new claims can be found in the specification, and no new matter has been added.

In the Office Action to which this paper is responsive, claims 1-6 and 8 were rejected under 35 U.S.C. §102(e), and claims 9-19 and 21 were rejected under 35 USC 103(a). Claims 7 and 20 were objected to as being dependent on a rejected base claim, but were found to be allowable if rewritten in independent form. Reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

Amendments to the Title

The title was objected to as not being descriptive of the invention. Applicant has amended the title as suggested by the Examiner; the amended title is also reflected in an updated Application Data Sheet submitted herewith. Applicant respectfully requests withdrawal of the objection to the title.

Claim Objections

Claims 2-4 were objected to because of the lack of consistent terminology, where the term "processors" was inadvertently used in place of "co-processors." Claims 2-4 have been amended to fix this typographical error. Claim 20 has also been amended to fix a typographical error.

Rejection under 35 USC §102(e), Diamant

Claims 1-6 and 8 were rejected under 35 USC 102(e) as being anticipated by U.S. patent publication No. 2004/0122997 to Diamant. Without conceding the merits of the rejection as applied to the previously presented claims, Applicant respectfully submits that the amended claims overcome this rejection.

Claim 1

Claim 1 is allowable as Diamant does not disclose or suggest each and every element of claim 1. For example, claim 1 recites "*wherein during execution the deferred*

servicing procedure services a plurality of pending interrupts generated by two or more of the plurality of co-processors, including the detected interrupt." Note that the Office Action equates a co-processor with a device 10 of Diamant. *See Office Action*, page 3 lines 3-5.

Diamant is directed to a deferred procedure call (DPC) within a device driver that services a single device (co-processor). *See Diamant*, Figure 1. In Diamant, there is one device driver 18 for each device 10. *See Diamant*, paragraph 21. ("The operating system 12 further loads into memory 6 and executes one device driver 18... for each device 10... recognized by the operating system 12.") (emphasis added). Diamant does not disclose a driver servicing a device other than the one with which it is associated. Thus, in Diamant, the DPC of a driver only services one device (co-processor). In contrast, claim 1 recites that "the deferred servicing procedure services a plurality of pending interrupts generated by two or more of the plurality of co-processors, including the detected interrupt." Accordingly, Diamant does not teach or suggest a deferred servicing procedure servicing pending interrupts from two or more co-processors.

For at least these reasons, claim 1 is allowable over Diamant. As claim 1 is allowable, dependent claims 2-13 are also allowable for at least the same rationale.

Claim 8

In addition to deriving patentability from independent claim 1, claim 8 is allowable for additional reasons. For example, claim 8 recites "*disabling further interrupts from the plurality of co-processors in the event that the detected interrupt was generated by one of the plurality of co-processors.*"

In Diamant, the driver may "disable certain of the device's interrupts." *See Diamant*, paragraph 41. As Diamant teaches that a driver services only one device, a driver disables interrupts from only one device (co-processor). In contrast, claim 8 recites "*disabling further interrupts from the plurality of co-processors.*"

Additionally, Diamant discloses that a driver may disable further interrupts from its associated device upon detecting an interrupt generated by that device. Thus, Diamant describes disabling interrupts from multiple devices only to the extent that multiple interrupts, one from each disabled device, are detected by multiple drivers. Accordingly, Diamant does not

teach or suggest disabling interrupts from more than one co-processor "in the event that the detected interrupt was generated by one of the plurality of co-processors," as recited in claim 8.

Further, the Office Action asserts that the Background section of Diamant (at page 1, paragraph 7) discloses this limitation, *see Office Action*, page 5, but this passage, as best understood, is simply inapplicable. The cited passage describes prior art operating systems that switch context and terminate interrupt service handling when the source of the interrupt is found. *See Diamant*, page 1, paragraph 7. According to Diamant, the problem with this technique is that once the context is switched out of interrupt service handling, there may be another interrupt that causes a context switch right back to the interrupt service handling state, which is undesirable where context switching is costly. Thus, interrupts are still being generated and have not been disabled as claim 8 recites.

For at least these reasons, claim 8 is allowable over Diamant.

Rejection under 35 USC §103(a), Diamant in view of Simpson

Claims 9-19 and 21 are rejected under 35 USC 103(a) as being unpatentable over Diamant in view of U.S. Patent No. 5,867,687 to Simpson. Without conceding the merits of the rejection as applied to the previously presented claims, Applicant respectfully submits that the amended claims overcome this rejection.

Claims 9-13

Claims 9-13 depend upon claim 1 and are allowable for at least the same rationale as claim 1.

Simpson is cited as teaching a method for handling interrupts based on multiple priority levels. (Office Action page 6). Even assuming that Simpson teaches this limitation and that there is a motivation to combine Simpson with Diamant, this teaching does not make up for the deficiencies in Diamant with respect to these claims.

Claim 14

Claim 14 is allowable over Diamant and Simpson, either alone or in combination, as those references fail to disclose or suggest all the elements of claim 14. For example, claim 14 recites:

a multiprocessor subsystem including a plurality of co-processors for processing data, wherein each of the co-processors is configured to generate interrupts; and
a driver module configured to control operation of the multiprocessor subsystem, the driver module including:
a schedulable servicing module configured to detect and service all pending interrupts from all of the co-processors when activated;

As explained above, Diamant does not teach or suggest a servicing module that services all pending interrupts from two or more co-processors. For at least these reasons, claim 14 is allowable over Diamant. As claim 14 is allowable, dependent claims 15-20 are also allowable for at least the same rationale.

Simpson is cited as teaching a method for handling interrupts based on multiple priority levels. (Office Action page 6). Even assuming that Simpson teaches this limitation and that there is a motivation to combine Simpson with Diamant, this teaching does not make up for the deficiencies in Diamant with respect to these claims.

Objection to Claims 7 and 20

Claims 7 and 20 were objected to as being dependent on a rejected base claim, but were found to be allowable if rewritten in independent form. In view of the foregoing arguments with regard to claims 1 and 14, Applicant respectfully submits that claims 7 and 20 are in condition for allowance without being rewritten in independent form. Withdrawal of the objection is respectfully requested.

New Claim 22

Claim 22 has been added by this amendment. Applicant respectfully submits that support for this claims may be found in the specification, e.g., in Figure 2 and at paragraph 43.

In order to expedite prosecution, Applicant respectfully submits that claim 22 is also patentable over the art of record, at least because claim 22 depends from claim 1 and derives patentability therefrom.

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PATENT

CONCLUSION

In view of the foregoing, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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